REMARKS

Claims 1 through 10 are pending in this application, of which claims 1 through 4 and 7 stand withdrawn from consideration pursuant to the provisions of 37 C.F.R. §1.142(b). Accordingly, claims 5, 6 and 8 through 10 are active, claims 5 and 8 being in independent form.

Claims 5 and 8 have been amended. Care has been exercised to avoid the introduction of new matter. Indeed, adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure, as, for example, page 12 of the written description of the specification, line 8. Applicants submit that the present Amendment does not generate any new matter issue.

Claims 5, 6 and 8 through 10 were rejected under 35 U.S.C. §102 for lack of novelty as evidenced by Kang et al.

In the statement of the rejection, the Examiner referred to Figs. 4b and 17 of Kang et al., asserting the disclosure of a device corresponding to that claimed. This rejection is traversed.

The factual determination of lack of novelty under 35 U.S.C. §102 requires the identical disclosure in a single reference of each element of a claimed invention, such that the identically claimed invention is placed into the recognized possession of one having ordinary skill in the art. *Dayco Prods., Inc. v. Total Containment, Inc. 329 F.3d 1358, 66 USPQ2d 1801 (Fed. Cir. 2003); Crown Operations International Ltd. v. Solutia Inc., 289 F.3d 1367, 62 USPQ2d 1917 (Fed. Cir. 2002).* There is a significant difference between the claimed device and the device

disclosed by Kang et al. that scotches the factual determination that Kang et al. disclose a device identically corresponding to that claimed.

Specifically, the electronic device defined in each of independent claims 5 and 8 comprises a **monocrystalline** diamond columnar member on a diamond substrate. No such device comprising a **monocrystalline** diamond columnar member on a diamond substrate is disclosed or suggested by Kang et al.

Applicants submit that based upon the technique disclosed by Kang et al., the emitter can not be monocrystalline. Rather, the emitter must be polycrystalline. This is because when the diamond is deposited by CVD on a silicon substrate wherein the cavity of the inverted permit is formed, the emitter must be polycrystalline. In support of that conclusion Applicants would note that the surface of the cavity is covered with an oxide film during heat treatment as, for example, in forming the silicon dioxide mask layer. Manifestly, the oxide film is not crystalline. Therefore, it is impossible to expitially grow a diamond on the surface of the oxide film.

In addition to the foregoing technological explanation of why the claimed invention distinguishes over the prior art, Applicants would note that the (111) plane is exposed on the slant face of the cavity formed by etching, and the depth direction of the cavity is in the <100> direction. Therefore, nuclei of the diamond monocrystalline is formed on the slant face and grow upwardly toward the horizontal direction across the cavity. Further, since material gases were introduced into the cavity from above, diamond monocrystalline grows upwardly in the cavity. Therefore, the diamond monocrystalline does not reach the edge portion of the cavity. As a result, the emitter frustum is formed such that it is impossible to form an acute emitter with higher emitting characteristics. It may be possible to fill the lower side by applying a technique

wherein a large number of microscopic crystals are formed; however, the resulting emitter is not monocrystalline with low emitting characteristics. Moreover, since the diamond of the emitter material is dissimilar from the silicon of the substrate material, it is extremely difficult to expitaxially grow the diamond emitter on the silicon substrate from a crystallography viewpoint. Accordingly, even if diamond monocrystalline, or a single-oriented polycrystalline, can be partially obtained using special processing (which is not disclosed by Kang et al.) of the heterogeneous substrate, the portion located adjacent the substrate is polycrystalline.

Based upon the foregoing, it should be apparent that the claimed invention differs from the applied prior art because it has a monocrystalline emitter; whereas, the applied prior art does not disclose, suggest or enable the formation of a monocrystalline emitter. This distinction between the claimed invention and the applied prior art is functionally significant, because high quality doping processes can be implemented vis-à-vis a polycrystalline emitter and, hence, an emitter with improved characteristic is obtained.

The above argued functionally significant difference between the claimed invention and the device of Kang et al. undermines the factual determination that Kang et al. disclose an electronic device comprising an electron-emitting element identically corresponding to that claimed. *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics Inc., 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); Kloster Speedsteel AB v. Crucible Inc., 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986).* Applicants, therefore, submit that the imposed rejection of claims 5, 6 and 8 through 10 under 35 U.S.C. §102 for lack of novelty as evidenced by Kang et al. is not factually viable and, hence, solicit withdrawal thereof.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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